

CLAIMS

What is claimed is:

1. A method for determining the slope of a first field pixel, the method comprising:
 - downscaling one or more sets of field pixels to generate one or more downsampled field pixels; and
 - detecting the slope of the first field pixel using the one or more downsampled field pixels.
2. The method of Claim 1 wherein the one or more sets of field pixels includes a first set of field pixels, the first set of field pixels including field pixels from a field line having the first field pixel.
3. The method of Claim 1 wherein the one or more sets of field pixels includes a second set of field pixels, the second set of field pixels including field pixels from a field line above a field line having the first field pixel.
4. The method of Claim 1 wherein the one or more sets of field pixels includes a third set of field pixels, the third set of field pixels including field pixels from a field line below a field line having the first field pixel.
5. The method of Claim 1 wherein downscaling comprises averaging a first set of field pixels, the first set of field pixels including at least 3 field pixels from a field line having the first field pixel.

6. The method of Claim 1 wherein downscaling comprises averaging a second set of field pixels, the second set of field pixels including at least 3 field pixels from a field line above a field line having the first field pixel.

7. The method of Claim 1 wherein downscaling comprises averaging a third set of field pixels, the third set of field pixels including at least 3 field pixels from a field line below a field line having the first field pixel.

8. The method of Claim 1 wherein downscaling comprises low-pass filtering a first set of field pixels, the first set of field pixels including at least 3 field pixels from a field line having the first field pixel.

9. The method of Claim 1 wherein downscaling comprises low-pass filtering a second set of field pixels, the second set of field pixels including at least 3 field pixels from a field line above a field line having the first field pixel.

10. The method of Claim 1 wherein downscaling comprises low-pass filtering a third set of field pixels, the third set of field pixels including at least 3 field pixels from a field line below a field line having the first field pixel.

11. The method of Claim 1 wherein detecting comprises:

high-pass filtering the downsampled field pixels to generate a detected value; and

comparing the detected value to a threshold value.

12. The method of Claim 1 wherein detecting comprises:

high-pass filtering at least 3 downsampled field pixels using a $[-1/4, 1/2, -1/4]$ high pass filter to generate a detected value; and

comparing the detected value to a threshold value.

13. A circuit for determining the slope of a field pixel, the circuit comprising:

a plurality of downscale circuits, each downscale circuit coupled to receive one or more sets of field pixels, and each downscale circuit operable to generate one or more downsampled field pixels from the one or more sets of field pixels; and

a plurality of edge detector circuits, each edge detector circuit coupled to receive one or more downsampled field pixels from a respective downscale circuit.

14. The circuit of Claim 13 wherein the one or more sets of field pixels include a first set of field pixels, the first set of field pixels including field pixels from a field line having the first field pixel.

15. The circuit of Claim 13 wherein the one or more sets of field pixels include a second set of field pixels, the second set of field pixels including field pixels from a field line above a field line having the first field pixel.

16. The circuit of Claim 13 wherein the one or more sets of field pixels include a third set of field pixels, the third set of field pixels including field pixels from a field line below a field line having the first field pixel.

17. The circuit of Claim 13 wherein each downscale circuit averages a first set of field pixels, the first set of field pixels including at least 3 field pixels from a field line having the first field pixel.

18. The circuit of Claim 13 wherein each downscale circuit averages a second set of field pixels, the second set of field pixels including at least 3 field pixels from a field line above a field line having the first field pixel.

19. The circuit of Claim 13 wherein each downscale circuit averages a third set of field pixels, the third set of field pixels including at least 3 field pixels from a field line below a field line having the first field pixel.

20. The circuit of Claim 13 wherein each downscale circuit low-pass filters a first set of field pixels, the first set of field pixels including at least 3 field pixels from a field line having the first field pixel.

21. The circuit of Claim 13 wherein each downscale circuit low-pass filters a second set of field pixels, the second set of field pixels including at least 3 field pixels from a field line above a field line having the first field pixel.

22. The circuit of Claim 13 wherein each downscale circuit low-pass filters a third set of field pixels, the third set of field pixels including at least 3 field pixels from a field line below a field line having the first field pixel.

23. The circuit of Claim 13 wherein each edge detector circuit includes a high-pass filter.

24. The circuit of Claim 13 wherein each edge detector circuit includes a $[-1/4, 1/2, -1/4]$ high pass filter.

25. A method for determining the slope of a first field pixel, the method comprising:

downscaling a first set of field pixels to generate a first downsampled field pixel;

downscaling a second set of field pixels to generate a second downsampled field pixel;

downscaling a third set of field pixels to generate a third downsampled field pixel; and

detecting the slope of the first field pixel using the first downsampled field pixel, the second downsampled field pixel, and the third downsampled field pixel.

26. The method of Claim 25 wherein the second set of field pixels are positioned in a field line above a field line having the first field pixel and the third set of field pixels are positioned in a field line below the field line having the first field pixel.

27. The method of Claim 25 wherein the second set of field pixels includes at least 3 field pixels that are positioned in a field line above a field line having the first field pixel and the third set of field pixels includes at least 3 field pixels that are positioned in a field line below the field line having the first field pixel.

28. The method of Claim 25 wherein downscaling the first set of field pixels to generate a first downsampled field pixel comprises averaging the first set of field pixels.

29. The method of Claim 25 wherein downscaling the second set of field pixels to generate a second downsampled field pixel comprises averaging the second set of field pixels.

30. The method of Claim 25 wherein downscaling the third set of field pixels to generate a third downsampled field pixel comprises averaging the third set of field pixels.

31. The method of Claim 25 wherein downscaling the first set of field pixels to generate a first downsampled field pixel comprises low-pass filtering the first set of field pixels.

32. The method of Claim 25 wherein downscaling the second set of field pixels to generate a second downsampled field pixel comprises low-pass filtering the second set of field pixels.

33. The method of Claim 25 wherein downscaling the third set of field pixels to generate a third downscaled field pixel comprises low-pass filtering the third set of field pixels.

34. The method of Claim 25 wherein detecting comprises:

high-pass filtering the first downscaled field pixel, the second downscaled field pixel, and the third downscaled field pixel to generate a detected value; and

comparing the detected value to a threshold value.

35. The method of Claim 25 wherein detecting comprises:

high-pass filtering the first downscaled field pixel, the second downscaled field pixel, and the third downscaled field pixel using a $[-1/4, 1/2, -1/4]$ high pass filter to generate a detected value; and

comparing the detected value to a threshold value.